



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/524,350

09/30/2005

Jao Wu

115427.00002

6322

72535

7590

05/29/2008

MCCARTER & ENGLISH, LLP STAMFORD OFFICE
FINANCIAL CENTRE, SUITE 304A
695 EAST MAIN STREET
STAMFORD, CT 06901-2138

EXAMINER

NGUYEN, DINH Q

ART UNIT

PAPER NUMBER

3752

MAIL DATE

DELIVERY MODE

05/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/524,350	Applicant(s) WU, JAO	
	Examiner Dinh Q. Nguyen	Art Unit 3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 20 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-4 and 6-11 is/are rejected.
- 7) ☐ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/26/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly added limitation “at their boundaries” does not provide support in the specification and drawing in such a way that one skilled in the art could fully understand the invention.
3. For the purpose of this Office action, the claims will be examined as best understood by the examiner.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 6, 7, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Grethe et al. as best understood by the examiner.

Grethe et al. an apparatus for regulating fluid flow through a spray nozzle, said apparatus comprising: a circular chamber 3 defined by spaced apart end walls 2/5a, a peripheral side wall, a central axis; an inlet 4 at or near said peripheral side wall to allow a flow of fluid to enter said chamber substantially tangential to said peripheral side wall, an outlet 5b exiting through one of said end walls wherein in use a flow of fluid entering through said inlet has a primary lower layer that substantially follows a first circular flow path which forms a vortex commencing at or near said peripheral side wall and increases in velocity and pressure towards said outlet (smaller cross section of the venture section 5 thus increases in velocity and pressure towards said outlet); and at least one secondary upper layer flowing in by inlet 9 that substantially follows a second flow path 8 radially inwardly towards said central axis, wherein said primary lower layer and said secondary upper layer interact at the boundaries and support each other (see column 2, lines 5+, column 3, lines 4+, and column 4, lines 8+) in a non-destructive manner from peripheral side wall to said outlet. The disc 5a is the spaced apart end wall with substantially flat and curved portion.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3, 4, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grethe et al. in view of Perera as best understood by the examiner.

Grethe et al. teaches all the limitations of the claims except for a disc engageable with a spray nozzle housing. However, Perera discloses an apparatus for regulating flow through a spray nozzle 3 comprising: a circular chamber 7 with end walls 1/15, a peripheral sidewall 5, a central axis; a first inlet 13 enter the chamber tangential to the peripheral wall to form a primary lower layer, an outlet exiting 3, wherein disc 5 engageable with a spray nozzle housing 1, a plurality of inlets 9, and a fix narrow annular gap 17 for generating an inwardly radial flow. Therefore, it would have been obvious to one having ordinary skill in the art to have provided the device of Grethe et al. with a disc engageable with a spray nozzle housing as suggested by Perera. Doing so would provide a compact spray nozzle (see column 1, lines 15+).

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grethe et al. in view of Perera as applied to claims 3, 4, 9, and 10 above, and further in view of Jacob.

Grethe et al. in view of Perera teaches all the limitations of the claims except for a shower head. However, Jacob discloses a radially inward inlet 58 and a circular chamber 48. Therefore, it would have been obvious to one having ordinary skill in the art to configure the device of Grethe et al. and Perera with a shower head as suggested by Jacob. Doing so would provide an effective shower head.

Allowable Subject Matter

9. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments filed February 20, 2008 have been fully considered but they are not persuasive in view of the Grethe et al. reference. The spray nozzle of the Grethe et al. provide continuous thin annular layers flow with low velocity to minimize the wear action of the fluid on the nozzle, thus the laminar continuous films of flowing fluid that does not create any back eddies that associated with turbulent flow.

Furthermore, the curve portion, the divergent-convergent section of the nozzle formed a venture section of the nozzle 5 that enhance the flow velocity and fluid pressure at the outlet, and the knife edge of the nozzle provide the laminar flow of the two fluid layers that flow along and without interact each other.

11. Applicant's arguments with respect to claims 1-4, 6-11 have been considered but are moot in view of the new ground(s) of rejection.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dinh Q. Nguyen whose telephone number is 571-272-4907. The examiner can normally be reached on Monday-Thursday 6:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on 571-272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dinh Q Nguyen/
Primary Examiner, Art Unit 3752

dqn